

Memorandum

To: Seth Craig-Snell, SCS Analytics; Fred Wu, AIQUEOUS; Jennifer Morris, ICC
From: The Opinion Dynamics Evaluation Team
Date: March 15, 2022
Re: Ameren Illinois Company Lighting Carryover Savings Claimable in 2021

This memo summarizes carryover savings claimable in 2021 from lighting distributed by Ameren Illinois Company (AIC) energy efficiency programs in prior years but not installed until 2021. The relevant initiatives include:

- Retail Products
- Direct Distribution (Appliance Recycling Kits, Community Kits, and School Kits)
- Standard (Instant Incentives)
- Income Qualified (SAVE Kits and BN Community Kits)

Methods

All 2021 carryover savings are estimated primarily based on assumptions outlined in the Illinois Technical Resource Manual Version 9.0 (IL-TRM V9.0) and finalized errata measures memo. Exceptions to this include in-service rate (ISR) trajectories and net-to-gross ratios (NTGRs), which are determined by assumptions in place during the year of purchase. All relevant ISR trajectories reflect installations over a three-year period, but exact trajectories vary by lamp type, application, and delivery channel. Based on these three-year trajectories, savings are claimed the year that lamps are installed, meaning that savings from second-year installations of lamps rebated or distributed in 2020 and third-year installations of lamps rebated or distributed in 2019 are claimed as part of the 2021 AIC portfolio.

Table 1 below provides Retail Products Initiative LED installation trajectories by bulb type and application, highlighting installations that will occur in 2021.

Table 1. Retail Products Initiative LED Lighting ISR Trajectory

Year of Sale	Application	Bulb Type	First Year	Second Year	Third Year	Cumulative
2020	Residential	Standard	76.0%	11.9%	10.1%	98.0%
		Specialty	81.5%	8.9%	7.6%	98.0%
	Commercial	All	82.5%	8.4%	7.1%	98.0%
2019	Residential	Standard	78.4%	10.6%	9.0%	98.0%
		Specialty	84.0%	7.6%	6.4%	98.0%
	Commercial	All	82.5%	8.4%	7.1%	98.0%

Table 2 below provides Direct Distribution LED installation trajectories by delivery channel, highlighting installations that will occur in 2021.

Table 2. Direct Distribution Initiative LED Lighting ISR Trajectory

Year of Sale	Delivery Channel	First Year	Second Year	Third Year	Cumulative
2020	School Kits	60.0%	13.0%	11.0%	84.0%
	Appliance Recycling Kits	66.0%	14.0%	12.0%	93.0%
	Food Pantry Distribution	80.3%	9.6%	8.1%	98.0%
	Community Kits	88.0%	4.0%	3.0%	95.0%
2019	School Kits	60.0%	13.0%	11.0%	84.0%
	Appliance Recycling Kits	59.0%	13.0%	11.0%	83.0%

Table 3 below provides Income Qualified LED installation trajectories by delivery channel, highlighting installations that will occur in 2021.

Table 3. Income Qualified Initiative LED Lighting ISR Trajectory

Year of Sale	Delivery Channel	First Year	Second Year	Third Year	Cumulative
2020	SAVE Kits (Unverified)	68.0%	15.0%	12.0%	95.0%
	SAVE Kits (Left)	68.0%	15.0%	12.0%	95.0%
	BN Community Kits	68.0%	15.0%	12.0%	95.0%

Table 4 below provides the Standard Initiative's Instant Incentives LED installation trajectories, highlighting installations that will occur in 2021.

Table 4. Standard Initiative Instant Incentives LED Lighting ISR Trajectory

Year of Sale	First Year	Second Year	Third Year	Cumulative
2020	82.5%	8.4%	7.1%	98.0%
2019	82.5%	8.4%	7.1%	98.0%

In response to uncertainty surrounding federal regulations of residential lighting, the IL-TRM V9.0 and errata recommendations specify dates after which certain categories of LED bulbs will achieve less savings as a result of expected increases in baseline efficiency levels. Specifically, it provides mid-life baseline adjustment factors dependent on bulb type and whether bulbs are distributed to income qualified (IQ) customers. These adjustment factors are detailed in Table 5 and applied to CPAS values in future years.

Table 5. LED Mid-Life Baseline Adjustment Factors

Bulb Type	Population	Adjustment Factor	Year in Which Applied
Standard	IQ	79%	2028
Standard	Non-IQ	38%	2025
Specialty – Directional	IQ	70%	2028
Specialty – Directional	Non-IQ	60%	2025
Specialty – Decorative	IQ	62%	2028
Specialty – Decorative	Non-IQ	61%	2025

To quantify upstream sales to IQ customers through the Retail Products Initiative, we relied on outputs from CLEAResult’s Retail Sales Allocation Tool (RSAT) included in the 2019 and 2020 initiative sales data. The RSAT uses a comprehensive GIS analysis-based approach to estimate incidence of IQ shoppers at each participating retail location. Based on geographic location, retailer type, population density, etc. each participating store location is assigned a percentage representing its expected incidence of IQ customers, and by extension, the expected portion of their sales going to IQ customers. RSAT IQ allocations range from 15.2% to 63.6% with discount stores and pharmacies generally representing the highest RSAT IQ allocations, while online store sales received an allocation of 0%. Thrift stores are assigned deemed IQ allocations of 100% in the absence of adequate research but with the understanding that these types of retailers tend to attract a higher proportion of IQ customers than other retail channels. We used these IQ allocations to determine the appropriate mid-life baseline adjustment for bulbs sold at each retail location.

Annual Savings

The Retail Products Initiative achieved 10,666 MWh and 1.41 MW in verified net carryover savings in 2021, as shown in Table 6. Standard LEDs account for the majority of energy and demand savings from 2019 purchases, but specialty LED) products (directional and decorative) contribute the majority of carryover savings from 2020 purchases.

Table 6. Retail Products Initiative Carryover Savings Claimable in 2021

Year	Bulb Type	Verified Gross Energy Savings (MWh)	Verified Gross Demand Savings (MW)	NTGR	Verified Net Energy Savings (MWh)	Verified Net Demand Savings (MW)
2020	Standard LED	1,620	0.21	0.690	1,117	0.14
	Specialty LED – Directional	2,354	0.31	0.690	1,624	0.21
	Specialty LED – Decorative	2,438	0.32	0.690	1,682	0.22
	LED Fixture	12	0.00	0.957	12	0.00
2019	Standard LED	5,953	0.79	0.690	4,108	0.55
	Specialty LED – Directional	2,129	0.29	0.690	1,469	0.20
	Specialty LED – Decorative	948	0.13	0.690	654	0.09
Total		15,454	2.05	0.690	10,666	1.41

The Direct Distribution Initiative achieved 735 MWh and 0.10 MW in verified net carryover savings in 2021, as shown in Table 7.

Table 7. Direct Distribution Initiative Carryover Savings Claimable in 2021

Year	Delivery Channel	Verified Gross Energy Savings (MWh)	Verified Gross Demand Savings (MW)	NTGR	Verified Net Energy Savings (MWh)	Verified Net Demand Savings (MW)
2020	School Kits Standard LED	162	0.020	1.000	162	0.020
	Appliance Recycling Kits Standard LED	9	0.001	1.000	9	0.001
	Food Pantry Distribution Standard LED	519	0.072	1.000	519	0.072
	Community Kits	21	0.003	1.000	21	0.003
2019	School Kits Standard LED	27	0.003	0.840	22	0.003

Year	Delivery Channel	Verified Gross Energy Savings (MWh)	Verified Gross Demand Savings (MW)	NTGR	Verified Net Energy Savings (MWh)	Verified Net Demand Savings (MW)
	Appliance Recycling Kits Standard LED	2	<0.001	1.000	2	<0.001
Total		739	0.099	0.994	735	0.099

The Income Qualified Initiative achieved 638 MWh and 0.08 MW in verified net carryover savings in 2021, as shown in Table 8.

Table 8. Income Qualified Initiative Carryover Savings Claimable in 2021

Year	Delivery Channel/Measure	Verified Gross Energy Savings (MWh)	Verified Gross Demand Savings (MW)	NTGR	Verified Net Energy Savings (MWh)	Verified Net Demand Savings (MW)
2020	Unverified SAVE Kit 9W LED A19	302	0.037	1.000	302	0.037
	Unverified SAVE Kit 6W LED G25	176	0.021	1.000	176	0.021
	Unverified SAVE Kit 8W LED BR30	148	0.018	1.000	148	0.018
	Left SAVE Kit 9W LED A19	3	<0.001	1.000	3	<0.001
	Left SAVE Kit 6W LED G25	4	<0.001	1.000	4	<0.001
	Left SAVE Kit 8W LED BR30	5	0.001	1.000	5	0.001
	BN Community Kit 9W LED A-Lamp	1	<0.001	1.000	1	<0.001
	BN Community Kit 8W LED BR30	0.2	<0.001	1.000	0.2	<0.001
	BN Community Kit 5.5W LED A-Lamp	0.2	<0.001	1.000	0.2	<0.001
Total		638	0.076	1.000	638	0.076

The Standard Initiative's Instant Incentives channel achieved 5,667 MWh and 1.34 MW in net carryover savings in 2021, as shown in Table 9. Linear LEDs account for over 80% of energy and demand savings from both 2019 and 2020 purchases.

Table 9. Standard Initiative Instant Incentives Carryover Savings Claimable in 2021

Year	Lamp Type	Verified Gross Energy Savings (MWh)	Verified Gross Demand Savings (MW)	NTGR	Verified Net Energy Savings (MWh)	Verified Net Demand Savings (MW)
2020	Linear LED	3,082	0.74	0.916	2,824	0.67
	Specialty LED	488	0.11		447	0.10
2019	Linear LED	2,269	0.54	0.916	2,079	0.50
	Specialty LED	320	0.07		293	0.07
	Standard LED	27	0.01		25	0.01
Total		6,186	1.46	0.916	5,667	1.34

Cumulative Annual Persisting Savings

The following tables provide cumulative persisting savings (CPAS) associated with total carryover savings and carryover savings from each initiative.

Table 10. AIC Portfolio Carryover CPAS and WAML

Initiative	WAML	First-Year Verified Gross MWh	NTGR	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
Retail Products Carryover	9.5	15,454	0.690	10,666	10,666	10,666	10,666	6,814	6,683	6,458	5,468	5,468	5,468	0	0	0	0	0	0
Income Qualified Carryover	10.0	638	1.000	638	638	638	638	638	638	638	459	459	459	0	0	0	0	0	0
Direct Distribution Carryover	10.0	739	0.994	735	735	735	735	721	721	721	570	570	570	0	0	0	0	0	0
Standard - II Carryover	14.1	6,186	0.916	5,667	5,667	5,667	5,667	5,538	5,528	5,510	5,364	5,364	5,364	5,362	5,362	5,362	5,290	3,909	0
2021 CPAS		23,016	0.769	17,706	17,706	17,706	17,706	13,710	13,570	13,327	11,862	11,862	11,862	5,362	5,362	5,362	5,290	3,909	0
Expiring 2021 CPAS				0	0	0	0	3,996	140	243	1,465	0	0	6,499	0	0	72	1,381	3,909
Expired 2021 CPAS				0	0	0	0	3,996	4,136	4,379	5,844	5,844	5,844	12,343	12,343	12,343	12,416	13,797	17,706
WAML	10.8																		

Table 11. Retail Products Initiative Carryover CPAS and WAML

Evaluation Measure Category	Measure Life	First-Year Verified Gross MWh	NTGR	CPAS (Verified Net MWh)											
				2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
2020 Standard LED – Residential Non-IQ	10.0	819	0.690	565	565	565	565	215	215	215	215	215	215	0	0
2020 Standard LED – Residential IQ	10.0	694	0.690	479	479	479	479	479	479	479	378	378	378	0	0
2020 Standard LED – Commercial	5.5	106	0.690	73	73	73	73	14	0	0	0	0	0	0	0
2020 Reflector LED – Residential Non-IQ	10.0	1,185	0.690	818	818	818	818	491	491	491	491	491	491	0	0
2020 Reflector LED – Residential IQ	10.0	872	0.690	601	601	601	601	601	601	601	421	421	421	0	0
2020 Reflector LED – Commercial	6.9	297	0.690	205	205	205	205	123	110	0	0	0	0	0	0
2020 Decorative LED – Residential Non-IQ	10.0	1,239	0.690	855	855	855	855	522	522	522	522	522	522	0	0
2020 Decorative LED – Residential IQ	10.0	892	0.690	616	616	616	616	616	616	616	382	382	382	0	0
2020 Decorative LED – Commercial	4.7	307	0.690	212	212	212	212	0	0	0	0	0	0	0	0
2020 LED Fixture – Commercial	10.0	12	0.957	12	12	12	12	7	7	7	7	7	7	0	0
2019 Standard LED – Residential Non-IQ	10.0	3,362	0.690	2,320	2,320	2,320	2,320	881	881	881	881	881	881	0	0
2019 Standard LED – Residential IQ	10.0	1,893	0.690	1,306	1,306	1,306	1,306	1,306	1,306	1,306	1,032	1,032	1,032	0	0
2019 Standard LED – Commercial	5.5	699	0.690	482	482	482	482	92	0	0	0	0	0	0	0
2019 Reflector LED – Residential Non-IQ	10.0	1,207	0.690	833	833	833	833	500	500	500	500	500	500	0	0
2019 Reflector LED – Residential IQ	10.0	615	0.690	424	424	424	424	424	424	424	297	297	297	0	0
2019 Reflector LED – Commercial	6.9	308	0.690	212	212	212	212	127	115	0	0	0	0	0	0
2019 Decorative LED – Residential Non-IQ	10.0	531	0.690	366	366	366	366	223	223	223	223	223	223	0	0
2019 Decorative LED – Residential IQ	10.0	280	0.690	193	193	193	193	193	193	193	120	120	120	0	0
2019 Decorative LED – Commercial	4.7	137	0.690	95	95	95	95	0	0	0	0	0	0	0	0
Total		15,454	0.690	10,666	10,666	10,666	10,666	6,814	6,683	6,458	5,468	5,468	5,468	0	0
Expiring 2021 CPAS				0	0	0	0	3,853	130	225	990	0	0	5,468	0
Expired 2021 CPAS				0	0	0	0	3,853	3,983	4,208	5,198	5,198	5,198	10,666	10,666
WAML	9.5														

Table 12. Direct Distribution Initiative Carryover CPAS and WAML

Evaluation Measure Category	Measure Life	First-Year Verified Gross MWh	NTGR	CPAS (Verified Net MWh)											
				2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	
2020 School Kits Standard LED	10.0	162	1.000	162	162	162	162	162	162	162	162	128	128	128	0
2019 School Kits Standard LED	10.0	27	0.840	22	22	22	22	8	8	8	8	8	8	8	0
2020 AR Kits Standard LED	10.0	9	1.000	9	9	9	9	9	9	9	7	7	7	0	
2019 AR Kits Standard LED	10.0	2	1.000	2	2	2	2	2	2	2	1	1	1	0	
2020 Food Pantry Distribution 9W Standard LED	10.0	519	1.000	519	519	519	519	519	519	519	410	410	410	0	
2020 Community Kits - Standard LED (Customer Assistance Kit)	10.0	9	1.000	9	9	9	9	9	9	9	7	7	7	0	
2020 Community Kits - ENERGY STAR Desk Lamp (Customer Assistance Kit)	10.0	1	1.000	1	1	1	1	1	1	1	1	1	1	0	
2020 Community Kits - Standard LED (Electric Community Kit #1)	10.0	1	1.000	1	1	1	1	1	1	1	1	1	1	0	
2020 Community Kits - Standard LED (Electric Community Kit #2)	10.0	5	1.000	5	5	5	5	5	5	5	4	4	4	0	
2020 Community Kits - Decorative LED (Electric Community Kit #2)	10.0	2	1.000	2	2	2	2	2	2	2	1	1	1	0	
2020 Community Kits - Directional LED (Electric Community Kit #2)	10.0	2	1.000	2	2	2	2	2	2	2	1	1	1	0	
2021 CPAS		739	0.994	735	735	735	735	721	721	721	570	570	570	0	
Expiring 2021 CPAS				0	0	0	0	14	0	0	150	0	0	570	
Expired 2021 CPAS				0	0	0	0	14	14	14	164	164	164	735	
WAML	10.0														

Table 13. Income Qualified Initiative Carryover CPAS and WAML

Evaluation Measure Category	Measure Life	First-Year Verified Gross MWh	NTGR	CPAS (Verified Net MWh)											Lifetime Savings
				2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	
Standard LED (2020 Unverified SAVE Kit)	10.0	302	1.000	302	302	302	302	302	302	302	238	238	238	0	2,827
Decorative LED (2020 Unverified SAVE Kit)	10.0	176	1.000	176	176	176	176	176	176	176	109	109	109	0	1,561
Reflector LED (2020 Unverified SAVE Kit)	10.0	148	1.000	148	148	148	148	148	148	148	103	103	103	0	1,344
Standard LED (2020 Left SAVE Kit)	10.0	3	1.000	3	3	3	3	3	3	3	2	2	2	0	25
Decorative LED (2020 Left SAVE Kit)	10.0	4	1.000	4	4	4	4	4	4	4	2	2	2	0	32
Reflector LED (2020 Left SAVE Kit)	10.0	5	1.000	5	5	5	5	5	5	5	3	3	3	0	44
Standard LED (2020 BN Community Kit)	10.0	0.6	1.000	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.5	0.5	0.5	0.0	6
Decorative LED (2020 BN Community Kit)	10.0	0.2	1.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.0	2
Standard LED (2020 BN Community Kit)	10.0	0.2	1.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.0	2
2021 CPAS		638	1.000	638	638	638	638	638	638	638	459	459	459	0	5,843
Expiring 2021 CPAS				0	0	0	0	0	0	0	178	0	0	459	
Expired 2021 CPAS				0	0	0	0	0	0	0	178	178	178	638	
WAML	10.0														

Table 14. Standard Initiative Instant Incentives Carryover CPAS and WAML

Evaluation Measure Category	Measure Life	First-Year Verified Gross MWh	NTGR	CPAS (Verified Net MWh)									
				2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
2020 Instant Incentives - Linear LED	14.8	3,082	0.916	2,824	2,824	2,824	2,824	2,824	2,824	2,824	2,824	2,824	2,824
2020 Instant Incentives - Specialty LED	10.4	488	0.916	447	447	447	447	393	391	385	314	314	314
2019 Instant Incentives - Linear LED	14.8	2,269	0.916	2,079	2,079	2,079	2,079	2,079	2,079	2,079	2,079	2,079	2,079
2019 Instant Incentives - Specialty LED	9.3	320	0.916	293	293	293	293	233	229	222	147	147	147
2019 Instant Incentives - Standard LED	7.8	27	0.916	25	25	25	25	10	5	0	0	0	0
2021 CPAS		6,186	0.916	5,667	5,667	5,667	5,667	5,538	5,528	5,510	5,364	5,364	5,364
Expiring 2021 CPAS				0	0	0	0	130	10	18	147	0	0
Expired 2021 CPAS				0	0	0	0	130	139	157	304	304	304

Evaluation Measure Category	Measure Life	First-Year Verified Gross MWh	NTGR	CPAS (Verified Net MWh)									
				2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
2020 Instant Incentives - Linear LED	14.8	3,082	0.916	2,824	2,824	2,824	2,824	2,251	0	0	0	0	0
2020 Instant Incentives - Specialty LED	10.4	488	0.916	314	314	314	264	0	0	0	0	0	0
2019 Instant Incentives - Linear LED	14.8	2,269	0.916	2,079	2,079	2,079	2,079	1,658	0	0	0	0	0
2019 Instant Incentives - Specialty LED	9.3	320	0.916	146	146	146	123	0	0	0	0	0	0
2019 Instant Incentives - Standard LED	7.8	27	0.916	0	0	0	0	0	0	0	0	0	0
2021 CPAS		6,186	0.916	5,362	5,362	5,362	5,290	3,909	0	0	0	0	0
Expiring 2021 CPAS				1	0	0	72	1,381	3,909	0	0	0	0
Expired 2021 CPAS				305	305	305	377	1,759	5,667	5,667	5,667	5,667	5,667
WAML	14.1												

Retail Products Income Qualified Allocations by Store Location

The following embedded tables provide Income Qualified allocations determined by CLEAResult's RSAT for each Retail Products participating store location.



Retail Products
RSAT Income Qualifi